

REFERENCES

- 1 Barber PA, Demchuk AM, Zhang J, *et al*. Validity and reliability of a quantitative computed tomography score in predicting outcome of hyperacute stroke before thrombolytic therapy. ASPECTS Study Group. Alberta Stroke Programme Early CT Score. *Lancet* 2000;**355**:1670–4.
- 2 Grund M, von Kummer R, Sobesky J, *et al*. Early x-ray hypoattenuation of brain parenchyma indicates extended critical hypoperfusion in acute stroke. *Stroke* 2000;**31**:133–9.
- 3 Truwit CL, Barkovich AJ, Gean-Marton A, *et al*. Loss of the insular ribbon: another early CT sign of acute middle cerebral artery infarction. *Radiology* 1990;**176**:801–6.
- 4 Tomura N, Uemura K, Inugami A, *et al*. Early CT finding in cerebral infarction: obscuration of the lentiform nucleus. *Radiology* 1988;**168**:463–7.
- 5 Bozzao L, Bastianello S, Fantozzi LM, *et al*. Correlation of angiographic and sequential CT findings in patients with evolving cerebral infarction. *Am J Neuroradiol* 1989;**10**:1215–22.
- 6 Gács G, Fox AJ, Barnett HJ, *et al*. CT visualization of intracranial arterial thromboembolism. *Stroke* 1983;**14**:756–62.
- 7 Pressman BD, Tourje EJ, Thompson JR. An early CT sign of ischemic infarction: increased density in a cerebral artery. *Am J Roentgenol* 1987;**149**:583–6.
- 8 Moulin T, Cottin F, Crépin-Leblond T, *et al*. Early CT signs in acute middle cerebral artery infarction: predictive value for subsequent infarct locations and outcome. *Neurology* 1996;**47**:366–75.
- 9 Jansen O, von Kummer R, Forsting M, *et al*. Thrombolytic therapy in acute occlusion of the intracranial internal carotid artery bifurcation. *Am J Neuroradiol* 1995;**16**:1777–86.
- 10 Jahan R, Duckwiler GR, Kidwell CS, *et al*. Intraarterial thrombolysis for treatment of acute stroke: experience in 26 patients with long-term follow-up. *Am J Neuroradiol* 1999;**20**:1291–9.
- 11 Furlan A, Higashida R, Wechsler L, *et al*. Intra-arterial prourokinase for acute ischemic stroke. The PROACT II study: a randomized controlled trial. Prolyse in acute cerebral thromboembolism. *JAMA* 1999;**282**:2003–11.
- 12 del Zoppo GJ, Poeck K, Pessin MS, *et al*. Recombinant tissue plasminogen activator in acute thrombotic and embolic stroke. *Ann Neurol* 1992;**32**:78–86.
- 13 Cerebral Embolism Task Force. Cardiogenic brain embolism. *Arch Neurol* 1986;**43**:71–84.
- 14 Hacke W, Kaste M, Fieschi C, *et al*. Intravenous thrombolysis with recombinant tissue plasminogen activator for acute hemispheric stroke. The European Cooperative Acute Stroke Study (ECASS). *JAMA* 1995;**274**:1017–25.
- 15 von Kummer R, Allen KL, Holle R, *et al*. Acute stroke: usefulness of early CT findings before thrombolytic therapy. *Radiology* 1997;**205**:327–33.
- 16 Kucinski T, Koch C, Grzyska U, *et al*. The predictive value of early CT and angiography for fatal hemispheric swelling in acute stroke. *Am J Neuroradiol* 1998;**19**:839–46.
- 17 Patel SC, Levine SR, Tilley BC, *et al*. Lack of clinical significance of early ischemic changes on computed tomography in acute stroke. *JAMA* 2001;**286**:1830–8.
- 18 Jain KK. Some observations on the anatomy of the middle cerebral artery. *Can J Surg* 1964;**7**:134–9.
- 19 Heinsius T, Bogousslavsky J, van Melle G. Large infarcts in the middle cerebral artery territory: etiology and outcome patterns. *Neurology* 1998;**50**:341–50.
- 20 Grotta JC, Chiu D, Lu M, *et al*. Agreement and variability in the interpretation of early CT changes in stroke patients qualifying for intravenous tPA therapy. *Stroke* 1999;**30**:1528–33.

NEUROLOGICAL STAMP

Egas Moniz (1874–1955)

Moniz had a distinguished political career before beginning serious neurological investigation at what some would consider the advanced age of 51. He was named Antonio Caetano de Abreu Freire Egas Moniz. His godfather added Egas Moniz and Moniz took this name when a student in Pamplona—Egas Moniz was a hero of the Portuguese resistance in the Portuguese wars against the Moors in the 12th century. Moniz graduated in 1899 from the University of Coimbra. He soon became professor of internal medicine with a special interest in diseases of the nervous system. Early fame was achieved following a scandalous book on sexology, written in 1901. In 1911 he became professor of neurology in Lisbon until his retirement in 1944. He was also pursuing a successful political career. Moniz supported a republican form of government, breaking with his family's traditional support for the monarchy. His political beliefs led to several brief periods in jail, twice as a student for participating in demonstrations and later when, as Dean of the Medical School in Lisbon, he prevented police from entering the campus to quell student protest. In 1900 he was elected to parliament and was re-elected several times over the next 15 years. During the first world war he was Ambassador to Spain and after the war, Minister of External Affairs. He represented Portugal at the 1918 Versailles Peace Conference. Moniz retired from politics in 1926 following a coup d'état that brought Antonio de Oliveira Salazar to power.



This stable dictatorship ended liberal democracy in Portugal for the rest of Moniz's life. In 1926, aged 51, he began his work on cerebral angiography. In collaboration with Almeida Lima he injected radio-opaque dyes into arteries, which enabled the cerebral vessels to be photographed. By 1927 it was possible to show that displacement in the cerebral circulation could infer the presence and location of brain tumours. A detailed account of the technique was published in 1931. Moniz became better known for his introduction, in 1935, of the operation of prefrontal leukotomy. It was for this work, described by the Nobel authorities as "one of the most important discoveries ever made in psychiatric medicine" that they awarded him the 1949 Nobel Prize for physiology or medicine. The operative technique was suggested to Moniz after hearing an account by John Fulton and Carlyle Jacobsen in 1935 of a refractory chimpanzee who

became less aggressive after its frontal lobes had been excised. Moniz invented a eukotome, which was a wire snare that passed into the posterior aspect of each frontal lobe and rotated in order to cut the white matter. He used the leukotome on December 27 1935, on two patients with paranoid schizophrenia. He named the procedure prefrontal leukotomy. Moniz had hoped that his pioneering work on angiography would be recognised with a Nobel Prize. He was nominated twice for the prize in 1928 and 1933.

Gambling was one of Moniz interests, and he wrote a treatise on the history of playing cards. He prepared several biographies, including one of Pope John XXI, or Petrus Hispanus, the only physician ever to become Pope. In 1974, on the centenary of his birth, his portrait, the leukotome, and angiogram were shown in stamps issued by Portugal (Stanley Gibbons no 1558–1560, Scott no 1241–1243).

L F Haas